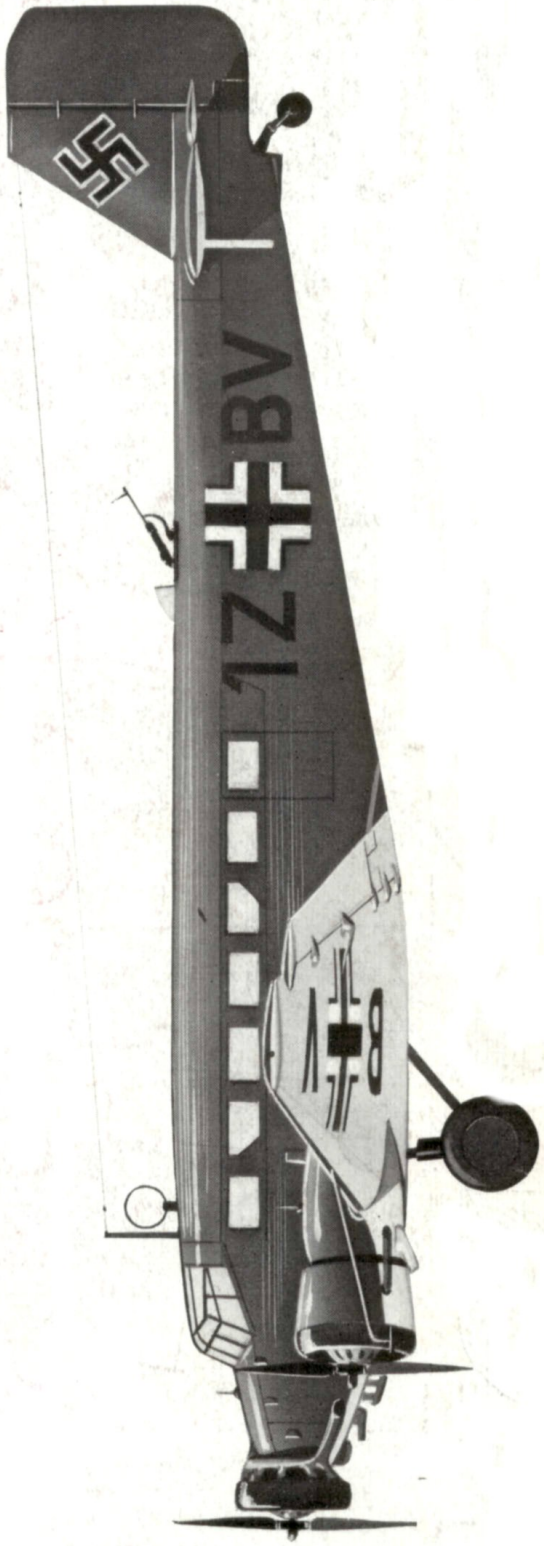
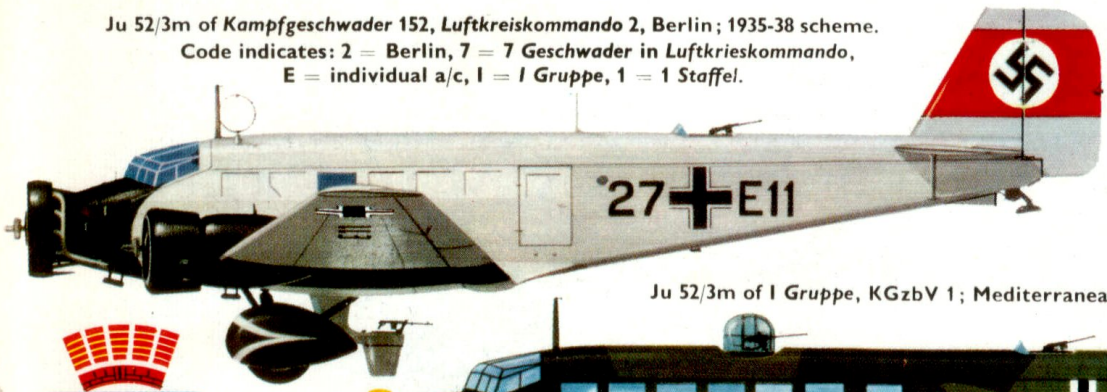
PROFILE
PUBLICATIONS

The Junkers Ju 52 Series



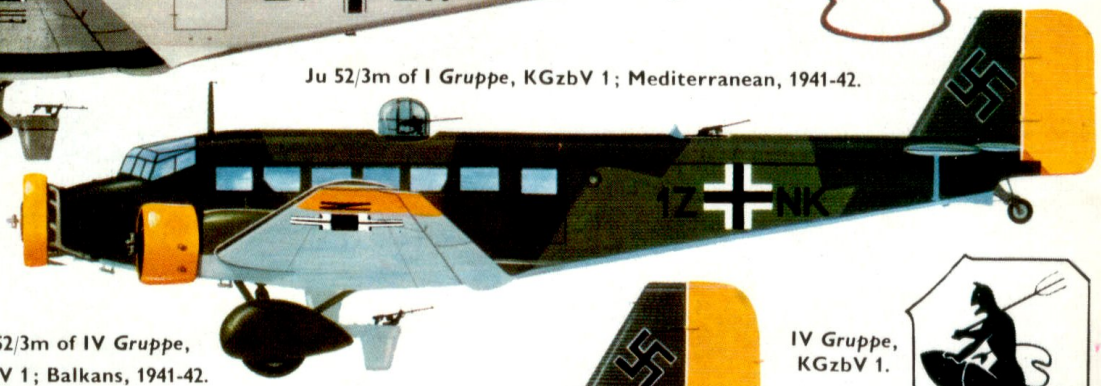
NUMBER 177

Ju 52/3m of *Kampfgeschwader* 152, *Luftkreiskommando* 2, Berlin; 1935-38 scheme.
Code indicates: 2 = Berlin, 7 = 7 *Geschwader* in *Luftkrieskommando*,
E = individual a/c, I = *I Gruppe*, 1 = 1 *Staffel*.



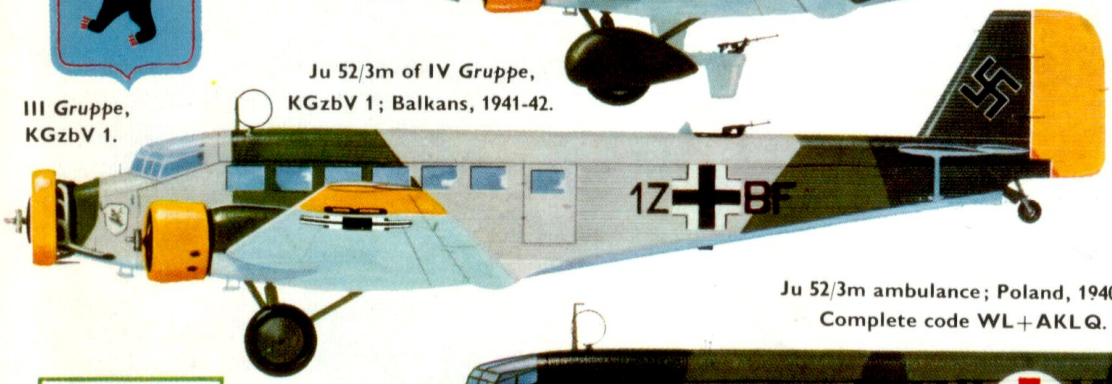
2 *Staffel*,
KGzbV 1.

Ju 52/3m of I *Gruppe*, KGzbV 1; Mediterranean, 1941-42.



III *Gruppe*,
KGzbV 1.

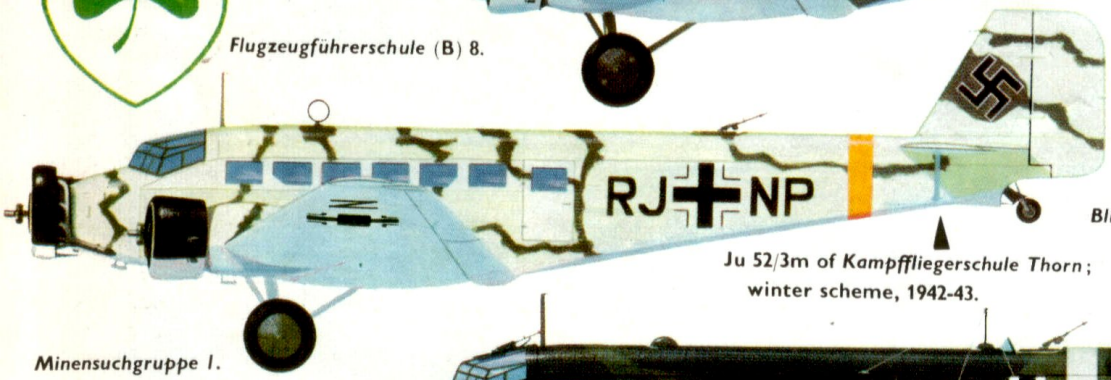
Ju 52/3m of IV *Gruppe*,
KGzbV 1; Balkans, 1941-42.



IV *Gruppe*,
KGzbV 1.

Ju 52/3m ambulance; Poland, 1940.
Complete code WL+AKLQ.

Flugzeugführerschule (B) 8.

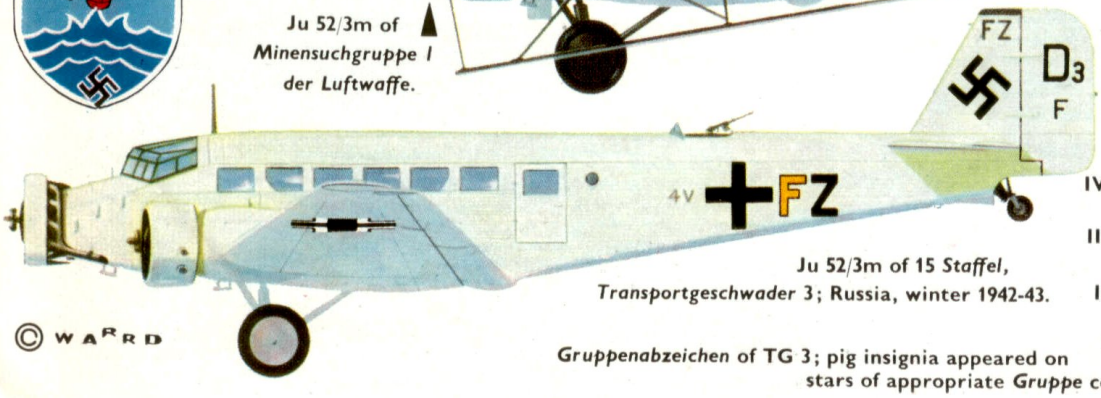


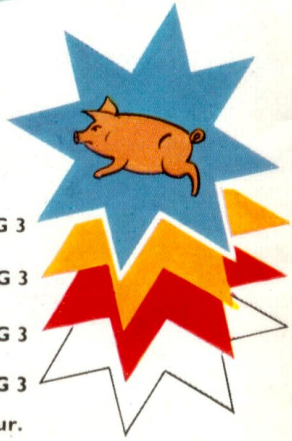
Blindflugschule B 36.

Ju 52/3m of *Kampffliegerschule Thorn*;
winter scheme, 1942-43.

Minensuchgruppe 1.

Ju 52/3m of
Minensuchgruppe 1
der Luftwaffe.





IV/TG 3

III/TG 3

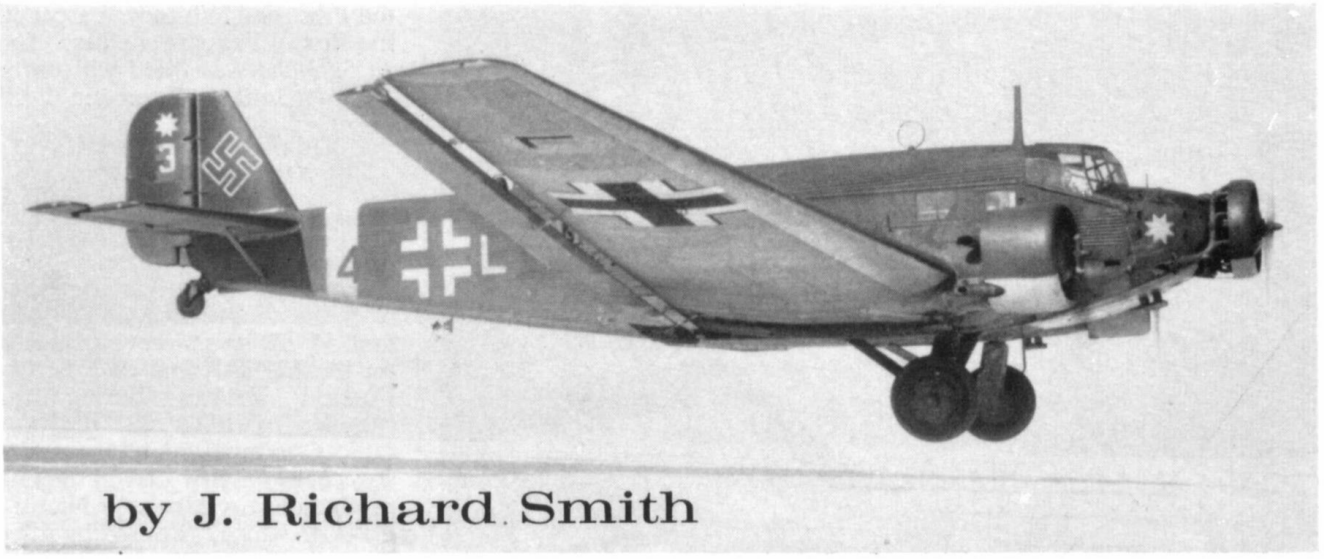
II/TG 3

I/TG 3

Ju 52/3m of 15 *Staffel*,
Transportgeschwader 3; Russia, winter 1942-43.

Gruppenabzeichen of TG 3; pig insignia appeared on
stars of appropriate *Gruppe* colour.

© WARD



by J. Richard Smith

"Tante Ju" *in flight; a machine of III/TG 3 over the Russian snowfields, with the* Gruppe *badge on nose and rudder.*
(Photo: R. C. Seeley Collection)

The Junkers Ju 52 Series

Affectionately known to *Luftwaffe* personnel as "Iron Annie", the Ju 52/3*m* was recognisable immediately by its lumbering corrugated silhouette as it roared overhead with a noise that has aptly been described as "six motor bikes racing downhill in bottom gear"! The Ju 52/3*m* and DC-3 Dakota can jointly claim to be the world's most famous transport aircraft, both being conceived well before the Second World War, and both being in passenger service for at least thirty years.

The history of the Ju 52/3*m* can logically be traced back to the Junkers J.I.—the world's first all-metal aeroplane completed in 1915. Employing the same corrugated skin as the J.I., the Ju 52 was developed via the F.13, G.23/G.24, G.31, W.33 and W.34 and made its initial appearance in 1930. The original Ju 52 was a single-engined low-wing cantilever monoplane employing the famous Junkers "double wing"—full span trailing edge flaps. The airframe was a tubular steel structure covered with sheets of corrugated aluminium which offered a great increase in strength over conventional smooth sheets. Cubic capacity of the cabin was 590 cu.ft. and a loading hatch, divided horizontally, was provided in the port side of the fuselage. When open, the lower half formed a platform to enable easy loading of cargo.

The first prototype, designated Ju 52*ba* (*D-1974*—W.Nr.4001) made its initial flight on 13th October 1930, powered by an 800 h.p. Junkers L.88 twelve cylinder liquid cooled in-line engine. After extensive trials, the Ju 52*ba* was re-engined with a 755 h.p. BMW VII*au* twelve cyclinder in-line as the Ju 52*be*. The second aircraft (*D-2133*—W.Nr.4002) had increased wing span and was initially fitted with a 755 h.p. B.M.W. VII as the Ju 52*de*. This engine was soon replaced by the 750 h.p. Armstrong Siddeley Leopard fourteen cylinder two-row radial, and *D-2133* became the Ju 52*di*. This engine was finally replaced by the 750 h.p. Junkers Jumo 204 diesel and the aircraft designated Ju 52*do*.

The third aircraft (*D-2317*—W.Nr.4004) was designated Ju 52*ce* and employed modified leading edge taper and structural strengthening. The machine was powered by a single B.M.W. VII*au* engine and was delivered to D.V.S. in September 1932. It was transferred to Sweden in December, becoming *SE-ADM*, and was fitted with both float and wheeled undercarriages. The Ju 52*de*/*di*/*do* was also seen as both land and floatplane, and the last aircraft, *CF-ARM*, was also fitted with skis.

D-2356 (W.Nr.4005) was a fifteen-seat airliner powered initially by the 780 h.p. B.M.W. IX*u* as the Ju 52*cai*. It crashed and was written off in May 1931. The last single-engined Ju 52 was *CF-ARM*

A gleaming Ju 52/3mge (*W.Nr.4041*) *in* Lufthansa *colours, registered D-3131 and named after Germany's First World War hero, "Werner Voss". The aircraft was subsequently re-registered as D-ARAM.*

Ju 52/3mho, W.Nr.4055, D-AQAR, displayed at the Paris Salon in floatplane configuration. The aircraft was operated by Lufthansa *under the name "W. Höhndorf".*
(Photo: G. Cattaneo)

(W.Nr.4006) delivered to Canadian Airways late in 1931. The machine was originally fitted with a B.M.W. VII*au* engine as a Ju 52*ce*, but this was replaced in 1936 by the 825 h.p. Rolls-Royce Buzzard as the Ju 52*cao*.

The Ju 52/3*m* was developed by Dipl.Ing. Zindel, Junkers's chief designer, as a three-engined successor to the Ju 52. Unfortunately, it has not been recorded which was the first prototype, although the earliest known *Werke Nr.* was 4008—a machine delivered to Lloyd Aereo Boliviano in 1932. The machine was powered by three B.M.W.-built Pratt and Whitney Hornet radials and designated Ju 52/3*mce*. (It has been reported that W.Nr.4007, intended as a Ju 52*ce*, was fitted with three Pratt & Whitney Hornet radials, and first flew early in 1932.) In all, seven aircraft were delivered to the Bolivian airline, but none carried markings. They were used mainly as passenger aircraft, but did take part in the Bolivian-Paraguayan dispute over the Gran Chaco of 1932-35. Here they served as military transports—the first recorded use of the Ju 52/3*m* in this, its most famous rôle.

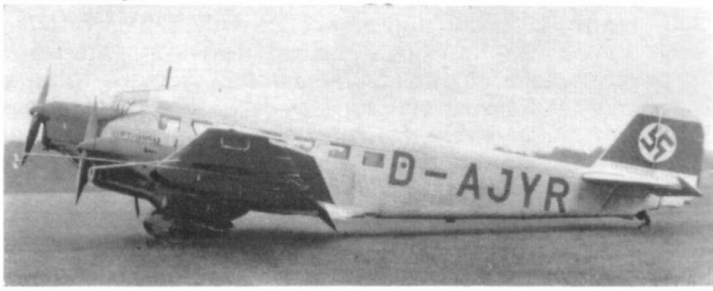
The Ju 52/3*mce* and *fe* (W.Nr.4020 onwards), the two most widely built aircraft from the early production series, were both powered by the B.M.W. Hornet nine cylinder radials. Other aircraft were fitted with the B.M.W. 132 (B.M.W.'s licence production version of the Hornet) the Hispano-Suiza, the Pratt and Whitney Wasp and the Bristol Pegasus engines. The Ju 52/3*mho* was fitted with three 650 h.p. Junkers Jumo L.5 diesel engines.

AIRLINE SERVICE

The first Ju 52/3*m*'s for *Lufthansa* were W.Nr.4013 and 4015, respectively *D-2201* "Boelcke" and *D-2202* "Richtofen" registered in May and September 1932. The first Ju 52/3*m*'s were introduced on the Berlin-Rome and Berlin-London services during the summer of 1932 and the type rapidly became one of the mainstays of *Lufthansa*. One of the first production aircraft was W.Nr.4016 *CV-FAI* which, powered by three Hispano-Suiza engines, was delivered to Prince Bibesco of Roumania. Production increased rapidly (see Table One) and by 1935, ninety-seven Ju 52/3*m*'s were serving with a variety of airlines. Early customers were the Finnish *Aero O/Y*, the Swedish *A.B. Aero-transport* and the Brazilian *Syndicato Condor* companies; and by the time production ceased, no less than 29 countries (excluding Germany) had operated the machine:—

Argentina: *Aeroposta Argentina*, (4 aircraft), LV-AAB, LV-AAJ, LV-BAB and LV-CAB.
Australia: *Gibbes Sepik Airways*, (3 aircraft), VH-BUU, VH-BUV and VH-BUW.
Austria: *Osterreichische Luftverkehrs*, (3), OE-LAK, OE-LAN and OE-LAP.
Belgium: *Sabena*, (9), OO-AGU, OO-AGW, OO-AUA, OO-AUB, OO-AUF, OO-AUG, OO-AUK, OO-CAP and OO-AGV.
Bolivia: *Lloyd Aereo Boliviano*, (7), all un-registered.
Brazil: *Syndicato Condor*, (17), PP-CAT, PP-CAY, PP-CAX, PP-CAY, PP-CAZ, PP-CBA to PP-CBH, PP-CBL, PP-CBP, PP-CBR and one other aircraft W.Nr.4025—registration unknown. *Varig*, (1), PP-VAL. *V.A.S.P.*, (3), PP-SPD to PP-SPF.
China: *Eurasian Aviation Corporation*, (5), registrations unknown.
Colombia: Three aircraft were operated by the Colombian Government.

A Lufthansa *Ju 52/3mho, powered by Junkers Jumo 5 diesel engines. This machine,* Werke Nummer *4045, was named "Emil Schaefer"*



Another early Lufthansa *machine with a proud name; this is Ju 52/3mce W.Nr.4022, "Manfred von Richthofen". Seen here as D-2527, it was re-registered D-AGUK.*

Two "turkeys" of the Spanish Nationalist Air Force. During the civil war the Ju 52/3m was used in both transport and bomber rôles, and was received with enthusiasm by Spanish crews. (Photo: Archivo Reyes)

Czechoslavakia: *C.S.A.*, (4), OK-PCC, OK-PCD, OK-TOI, OK-ZDO.
Denmark: *D.D.L.*, (3), OY-DAL, OY-DFU and OY-DFY.
Ecuador: *S.E.D.T.A.*, (2), HC-SND and HC-???
Estonia: *A.G.O.*, (1), ES-AUL.
Finland: *Aero O/Y*, (5), OH-ALK, OH-ALL, OH-LAM, OH-LAO and OH-LAP.
France: (All nationally built)—*Air France*, (87), F-BAJA to F-BAJE, F-BAJG to F-BAJP, F-BAJS to F-BAJV, F-BAJX, F-BAKK to F-BAKV, F-BAKX to F-BALO, F-BAMO to F-BAMV, F-BAMX to F-BANC, F-BANE to F-BANS, F-BBYG to F-BBYJ, F-BCHJ and F-BCHP. *Air Atlas*, (10), F-BBYT, F-BBZL, F-BCHJ to F-BCHQ. *Aigle Azur*, (2), F-BBZE and F-BDYA. *S.A.N.A.*, (8), F-BBZA, F-BB7F to F-BBZK and F-BDYE. *Ste Aero-Cargo*, (2), F-BBYP and F-BCHB. *T.A.I.*, (7), F-BBYK to F-BBYN, F-BCHA, F-BCHG and F-BCHX.
Great Britain: *British Airways*, (3), G-AERU, G-AERX and G-AFAP. *Railway Air Services*, (1), G-AHBP. *British European Airways*, (10), G-AHOC to G-AHOL. *British Overseas Airways*, (1), G-AGAE.
Greece: *S.H.C.A.*, (3), SX-ACF, SX-ACH and SX-ACI.
Hungary: *Malert*, (5), HA-DUR, HA-JUA to HA-JUC and HA-JUF.
Italy: *Ala Littoria*, (5), I-ABJZ, I-BAUS, I-BAZI, I-BEZI and I-BIZI.
Libya: *Air Liban*, (3), LR-AAC, LR-AAJ and LR-AAI (all French built ex *Air France* aircraft).
Mozambique: *D.E.T.A.*, (3), CR-AAJ, CR-AAK and CR-AAL.
Norway: *D.N.L.*, (8), LN-DAE, LN-DAF (later LN-KAG), LN-DAH, LN-DAI, LN-KAA, LN-KAE, LN-KAF and LN-KAI.
Peru: (1), OA-HHA.
Poland: *L.O.T.*, (1), SP-AKX.
Portugal: *Servicos Aereos Portugueses*, (1), CS-ADA (ex-Air France).
Roumania: *L.A.R.E.S.*, (1), CV-FAI (later YR-ABF).
Spain: *Iberia*, (16), EC-AAF to EC-AAU, EC-ADO, EC-ADP, EC-ADQ, EC-CAJ (later EC-ABD), EC-CAK (later EC-ABE), EC-CAL (later EC-AAU), EC-CAN (EC-ABF), EC-DAM (EC-ABR) and EC-DAN (EC-ABS).
Sweden: *A.B. Aerotransport*, (7), SE-ADR, SE-AER, SE-AES, SE-AFA, SE-AFB, SE-AFC and SE-AFD.
South Africa: *South African Airways*, (15), ZS-AFA to ZS-AFD, ZS-AJF to ZS-AJJ, ZS-AKY, ZS-ALO, ZS-ALP, ZS-ALR, ZS-ALS and ZS-ALU.
Uruguay: *C.A.U.S.A.*, (2), CX-ABA and CX-ABB.

In addition to the above-named foreign countries, no less than 231 Ju 52/3*m*'s were registered in the name of *Lufthansa*. Perhaps two of the most interesting were *D-2600* "Immelmann" and *D-ALYL* "Hans Loeb". The former was used as a personal transport by Adolf Hitler until replaced by the Fw 200 V3, which was also registered *D-2600* and named "Immelmann". *D-ALYL* was re-named "XI Olympiade" in 1936 and marked with the five symbolic rings in honour of the 1936 Berlin Olympic Games.

INTO UNIFORM

Several Ju 52/3*m*'s were fitted with twin floats, the first machines to employ this feature being W.Nr.4014 *OH-ALK* and W.Nr.4017 *SE-ADR*. In 1934 a military version of the Ju 52/3*m* was produced for use by the still secret *Luftwaffe*. Designated Ju 52/3*mg3e*, the aircraft was designed as a heavy bomber with a crew of four and two 7·9 mm. MG 15 machine guns. One was fitted in the dorsal position, the other in a retractable metal "bucket" below the fuselage, aft of the undercarriage.

Four hundred and fifty Ju 52/3*mg3e*'s were delivered during the period 1934-35 but little use was made of the aircraft as a bomber by the *Luftwaffe*. On 18th July 1936 a revolution, led by General Francisco Franco Bahamonde, broke out in Spain. The warring factions received immediate assistance from foreign countries, the fascist powers being quick to support the revolutionaries. Twenty Ju 52/3*mg3e*'s and six He 51 fighters were dispatched to Spain and the former were used to help ferry 10,000 Moorish troops from Morocco to Spain.

In November 1936, the *Condor Legion* was formed. This was a special air arm using *Luftwaffe* personnel and aircraft (in Spanish Nationalist uniforms and insignia) and originally comprising a fighter group, a bomber group, a reconnaissance squadron, a seaplane squadron and several support units. *Kampfgruppe 88*, the bomber unit, was equipped initially with three *Staffeln* of Ju 52/3*mg3e*'s, but by the end of 1937 they had become obsolete in the bomber rôle and were replaced by the much more advanced Dornier Do 17E-1 and Heinkel He 111B-1.

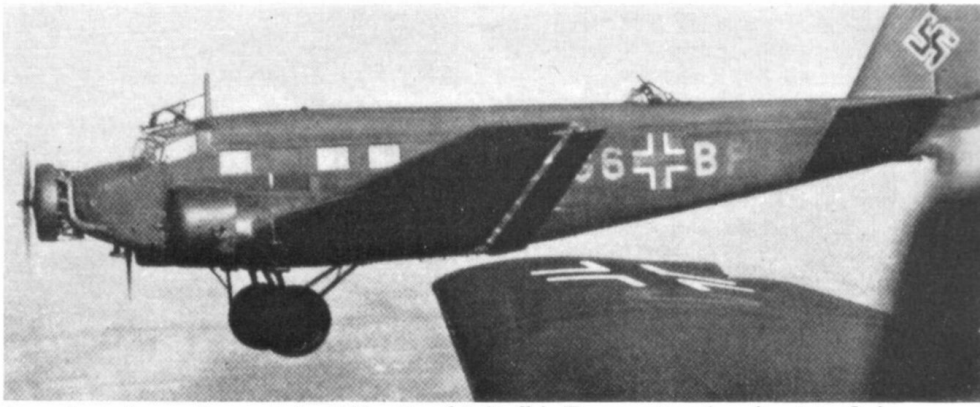
In Spanish Nationalist service the Ju 52/3*m* established a formidable reputation and gained the affectionate name "*pava*" (turkey). As stated above, the first 20 aircraft were used to transport troops from

A Ju 52/3mg3e of the Legion Condor *in Spain, the first of many battlefields for "Iron Annie." The open fuselage door conceals part of the Ju 52's type coding in Spanish service—"22".* (Photo: via Jean Cuny)

Poor in quality but of historical interest, this photograph illustrates early trials of the Ju 52/3m as a glider tug, utilising a short tow bar rather than the usual cable. The glider is a DFS 230, numbers of which were towed into action by Ju 52/3m's during the invasion of Crete in 1941.

Morocco to the Spanish mainland. Initially Spanish crews were trained by German airmen at Seville and the first unit, *escuadra B*, was in action for the first time during September 1936. During the following months, wherever Nationalist troops were engaged, the Ju 52/3*m* was acting in support, although early in 1937 the Republican fighters were causing great havoc amongst Nationalist bombers. (One particular Ju 52 was attacked by 24 Republican I-15 fighters before being shot down !). By the end of 1937, the Nationalists had attained complete air superiority and the Ju 52's were constantly in action. Other units to operate the type included *escuadra* 4-E-22, *grupo* 1-G-22 and *grupo* 2-G-22. To distinguish Nationalist machines from those of the *Condor Legion*, the former carried a St. Andrew's cross superimposed on the black disc marking on the fuselage sides. During the Nationalist push to the Mediterranean, the bitter fighting around the Ebro (July to December 1938) and the final victorious campaign in Catalonia (Spring 1939), the Ju 52's were rarely molested by Republican fighters. They made their last operational sortie on 26th March 1939 bombing targets at Belmez.

The Nationalist Ju 52's had operated throughout the Spanish Civil War and their activities could be considered a decisive factor in Franco's ultimate success. In 13,000 hours of operations, they had flown 5,400 offensive missions and dropped over 6,000 tons of bombs. Eight aircraft were lost: three destroyed on the ground and five in the air. In April 1939, the twenty-five Ju 52's remaining were mustered at Leon, all Nationalist except for two *Condor Legion* machines used as transports.



A Ju 52/3mg7e of 6 Staffel, Transportgeschwader *4 in flight.* (Photo: Imp. War Mus. 1/8492)

Snapshot showing the nose of a Ju 52/3m of KGrzbV 108 at Banak, Norway, during 1940. During the invasion of Norway this unit was equipped with a mixture of Heinkel He 59 and Ju 52/3m floatplanes, and landed German Gebirgsjäger (*alpine*) *troops from several Norwegian fjords.* (Photo: Hans Obert)

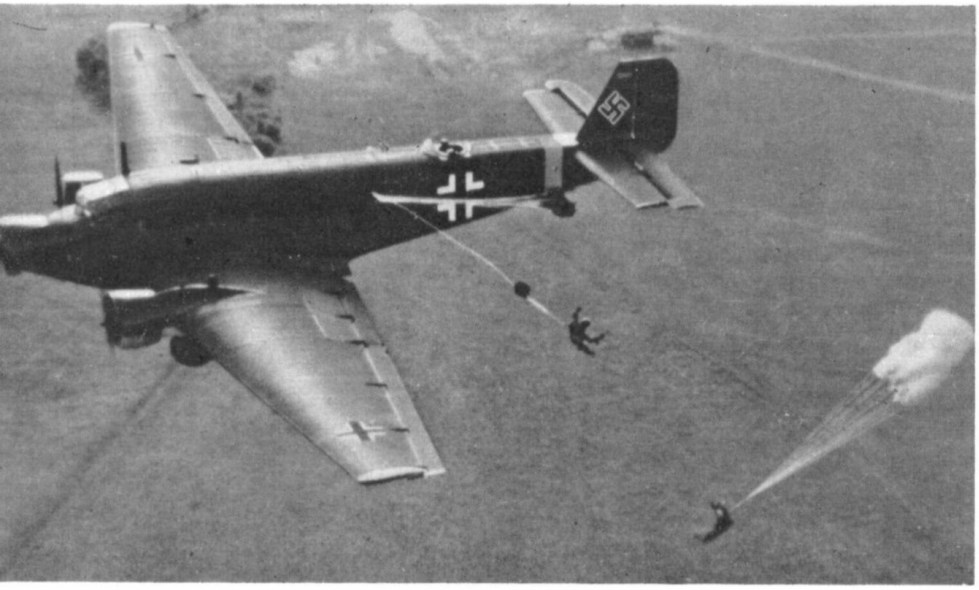
The Ju 52/3*mg3e* was superseded by the *g4e* in 1935. This differed in having a strengthened undercarriage which permitted an increase in all-up weight from 20,950 lbs. to 23,150 lbs. The *g4e* also had the ventral turret deleted and was used mainly as a transport aircraft. The Ju 52/3*mg5e* was fitted with the more powerful 830 h.p. B.M.W. 132T radials, these replacing the earlier B.M.W. 132A's of 600 h.p. It was also fitted with de-icing equipment and could operate with either wheels, floats or skis.

The Ju 52/3*mg6e* was a specialised military transport with improved radio equipment. The machine was often equipped with defensive armament, and could be fitted with a huge dural hoop, which, when energised by a small auxiliary motor, was used for exploding magnetic mines. (Other German aircraft fitted with this de-gaussing structure included the Bv 138, the Ha 139 V3, and the Do 23 and all were used operationally by the *Minesuchsgruppe*, which based on various parts of the French coast, remained operational until late 1944.

The main production version was the Ju 52/3*mg7e*, a pure transport aircraft capable of carrying 18 troops or 12 stretchers. It was a development of the *g5e* fitted with an automatic pilot, larger cabin doors and other general improvements. Armament was standardised as one 13 mm. MG 131 machine gun in the dorsal position and two 7·9 mm. MG 15 machine guns firing through the side windows.

The Ju 52/3*mg8e* was a development of the *g6e*

The Ju 52/3m was used in all the phases of German airborne assaults; as a paratroop aircraft, a glider-tug, and a front-line transport to fly in support equipment once the Drop Zone was in German hands. Here Luftwaffe *paratroopers are seen unloading what appear to be canisters of mortar ammunition from a Junkers.*



In its classic rôle—a Ju 52/3m flies straight and level at low altitude while a stick of Fallschirmjäger *tumble from the door.*

fitted with more extensive glazing and unspatted wheels. Initially powered by the BMW 132T, later aircraft were fitted with the 132Z; W.Nr.7730 and subsequent machines featured an MG 131 machine-gun in the dorsal position. The *g9e* went into production in 1942 and was generally similar to the *g8e*; however, provision was made for glider-towing and the undercarriage was strengthened to permit a take-off weight of 25,350 lbs. The Ju 52/3*mg10e* was generally similar but could be operated on floats, while the *g12e* was a troop transport powered by three BMW 132L. A small number of these latter were supplied to *Lufthansa* under the designation Ju 52/3*m-12* during 1942-3. The last production version of the type was the BMW 132Z-powered Ju 52/3*mg14e* delivered in 1943 and 1944: it featured improved armour protection for the pilot and strengthened defensive armament. The *g4e*, *g5e*, *g8e*, *g10e* and *g14e* could all be fitted with floats. German production of the machine continued until 1944, 2,804 of the 3,234 built being manufactured between 1939 and 1944. Detailed production figures were 145 in 1939, 388 in 1940, 502 in 1941, 503 in 1942, 887 in 1943 and 379 in 1944.

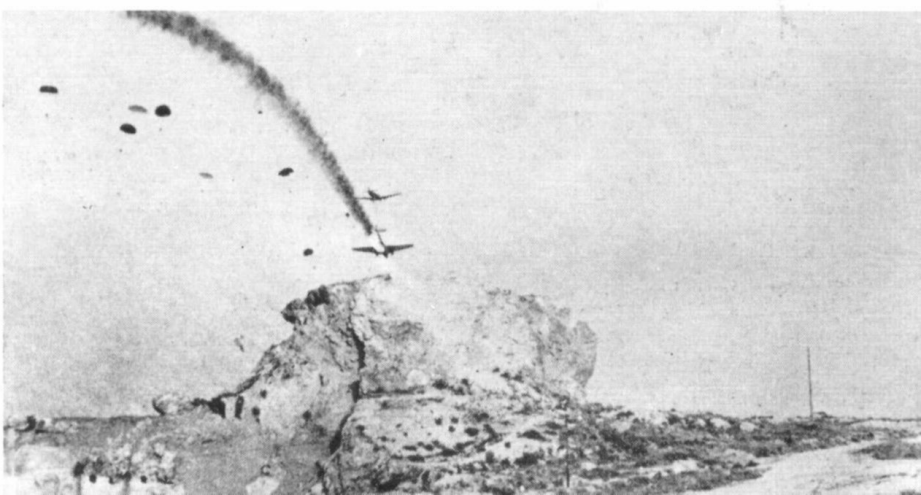
During the Austrian Anschlüss of March 1938, the Ju 52/3*m* took a prominent part in the *Luftwaffe's* show of strength. When Germany entered Poland in September 1939, it possessed a large number of Ju 52/3*m*'s based mainly at Berlin-Templehof and in Silesia. Many aircraft were commandeered from *Lufthansa*, although the airline retained several machines until at least 1944. The Junkers transports were used in the Polish campaign for general supply work, but their first really famous operation came in April 1940.

Code named "*Unternehmen Weserubung*", the invasion of Norway and Denmark was initiated in the early hours of 9th April 1940. No less than 571 Ju 52/3*m*'s from twelve transport *Gruppen* were operational for the assault, and each was allocated a particular task. I./KGzbV 1 transported *III./Infanterie Regiment 159* from Utersen to Aalborg. The fifth and sixth *Staffeln* of KGzbV 1 (in the event the latter unit only managed to scramble eight aircraft from its base at Holtenau) dropped *1./Fallschirm Jäger Regiment 1* at Fornebu, later returning with fuel at Aalborg; 7./KGzbV 1 dropped 3./FJR 1 over Stavanger at 08.45 hours and 8./KGzbV 1 dropped 4./FJR 1 over Aalborg—dropping the remainder of the *Kompanie* at Vordingborg to ensure German command of the famous bridge.

The third and fourth *Gruppen* of KGzbV 1 transported about 37,500 Imp. gals. of aviation fuel from Hagenow to Aalborg. KGrzbV 101's fifty-three aircraft were used to transport anti-aircraft guns and ammunition to Aalborg West and aviation fuel to Stavanger-Sola. It was also used to transport the *11th Kompanie* of IR 324 to Fornebu, and during this operation lost one aircraft complete with troops. KGrzbV 102 transferred I./IR 324 and some anti-aircraft equipment from Oldenburg to Fornebu, but lost several aircraft.

The 53 aircraft of KGrzbV 103 under Hptm. Wagner transported II./IR 324 to Fornebu. The unit had to land into anti-aircraft fire as the planned support from parachute troops did not materialise owing to the bad weather. KGrzbV 104 transferred the *Stab* and I./IR 193 and anti-aircraft equipment from Stade to Stavanger-Sola. Three aircraft from KGrzbV 105 were used for reconnaissance sorties over Trondheim, Oslo-Kjeller and Kristiansand, and landed, with additional aircraft, anti-aircraft equipment at Trondheim. The remaining eleven aircraft from the unit flew fuel and anti-aircraft equipment to Stavanger, although four had to return owing to bad weather.

KGrzbV 106's 51 aircraft transferred II./IR 193 from Utersen to Stavanger, but lost two aircraft.



Despite its ultimate success, the airborne assault on Crete was something of a Pyhrric victory; casualties in men and aircraft were appallingly high, even though the British defenders of the island were weak in numbers and equipment. In this dramatic photograph, a Ju 52/3m plunges in flames over Heraklion, while its load of paratroopers drifts down in the foreground.
(Photo: Imp. War Mus. A4155)

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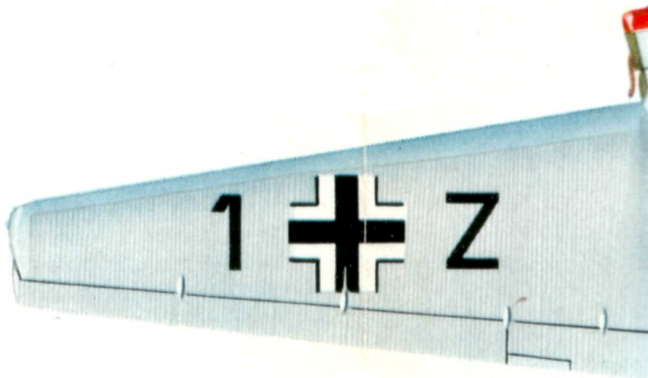
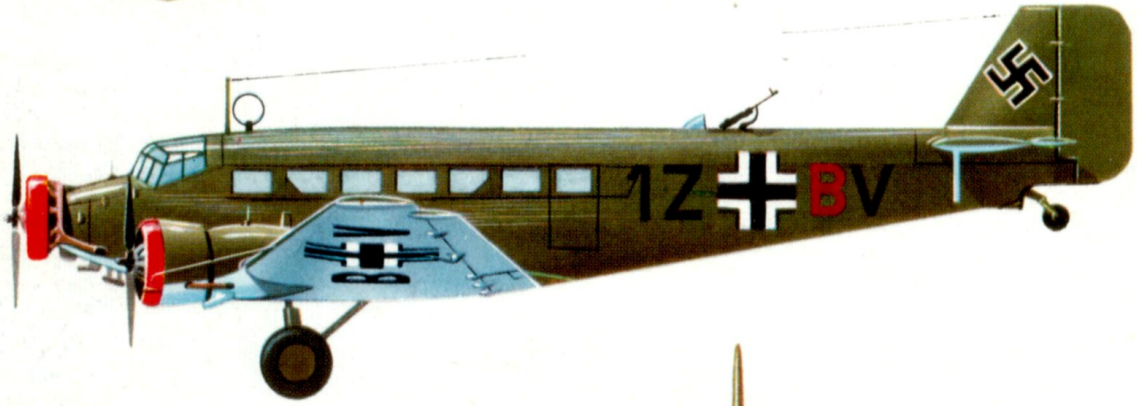
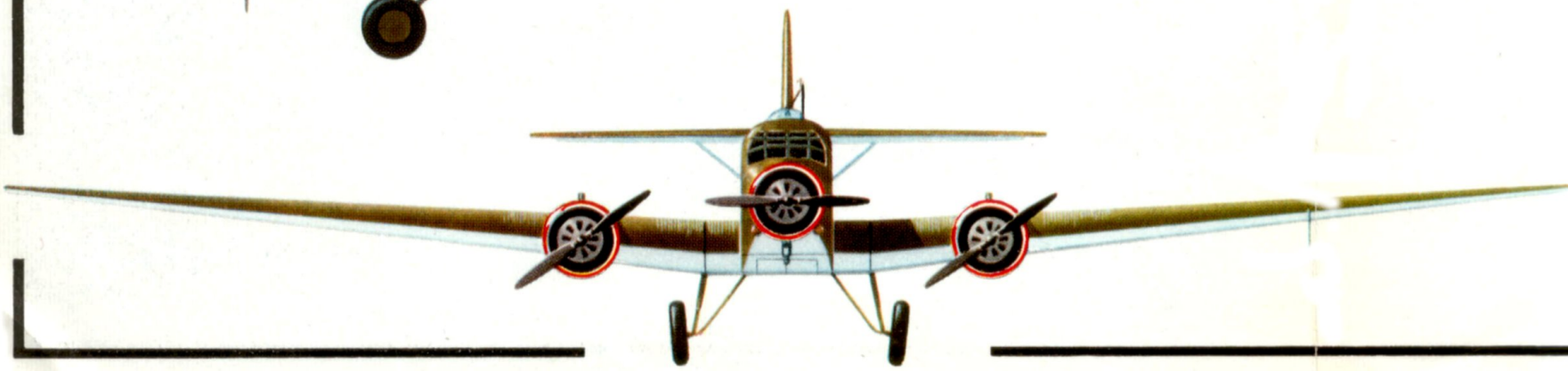
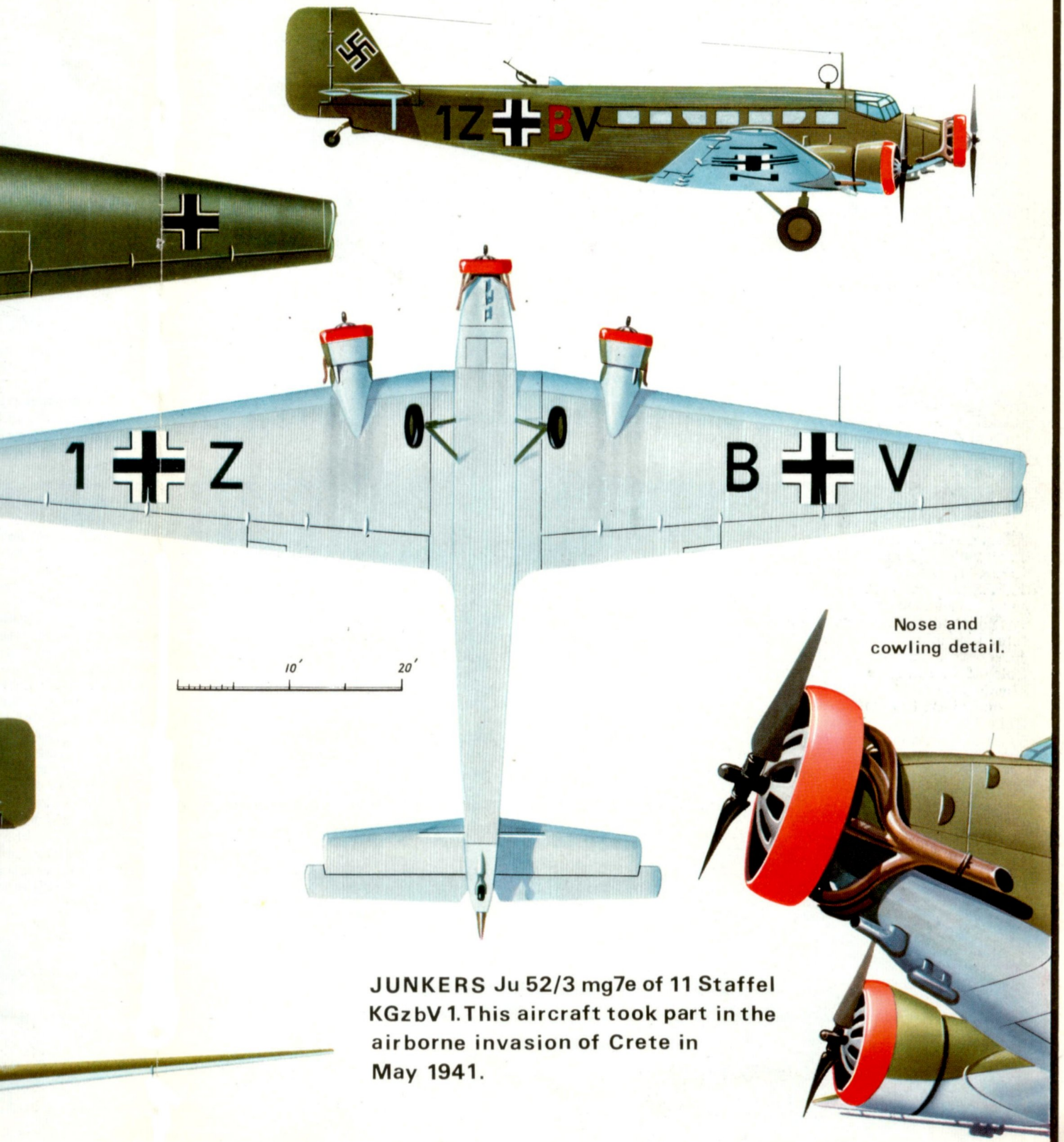
Detail of dorsal armament.









Nose and cowling detail.

JUNKERS Ju 52/3 mg7e of 11 Staffel KGzbV 1. This aircraft took part in the airborne invasion of Crete in May 1941.

KGrzbV 107 was a little luckier however. It was used to transfer *Stab*/IR 324 and I./IR 234 from Hamburg-Fuhlsbüttel to Stavanger and III./IR 324 (minus *11 Kompanie*) to Fornebu. KGrzbV 108, with a mixture of He 59 and Ju 52/3*m* floatplanes, was used to land alpine troops in several Norwegian fjords where it would have proved impossible for landplanes to operated.

During the Norwegian campaign, 3,018 sorties were undertaken, 1,830 with troops and 1,188 with supplies of various kinds. A total of 29,280 men, 2,376 tons of supplies and 259,300 Imp. gals. of aviation fuel were landed by the Ju 52/3*m*'s taking part in the operation. Losses amounted to 150 aircraft.

GLIDERS IN THE WEST

Early in 1939, Hanna Reitsch, the famous woman test pilot then serving with the *Deutsche Forschungsanstadt für Segelflug*, tested an experimental troop carrying glider, the DFS 230. Designed by Hans Jakob the machine was towed behind the Ju 52/3*m* and heralded a new concept in aerial warfare. It could carry a crew of two plus eight fully-equipped troops and was capable of steep dives. Hanna Reitsch demonstrated the machine before Ritter von Greim, Kesselring, Model, Milch and Udet, and the aircraft so impressed the officers that they asked for a trip in it themselves, which was duly given them !

When Germany launched its invasion of France and the Low Countries on 10th May 1940, the glider-borne troops were used for the first time to capture the important fort of Eben Emael which dominated the Albert Canal. The capture of the fort and the Albert Canal itself was entrusted to *Sturm Abteilung Koch* under Hptm. Koch. This was to comprise 1./FJR 1, the sapper parachute detachment from *VII Fliegerkorps*, a *Schlepp Gruppe* with its attached glider detachment and various ground support units. The glider pilots, who were all amateurs, trained under conditions of extreme secrecy at Hildesheim. Their gliders were then disassembled and transported to Cologne in furniture vans to make ready for the assault.

Nine gliders took off from Köln-Butzweilerhof and Köln-Ostheim at 04.30 hours but only seven (carrying 55 troops) actually arrived. A small dive bomber attack was made on the village of Eben Emeal while 1./FJR 1 captured three bridges. The sapper detachment (all volunteers) actually attacked the nine defended fortifications using 12·5 and 50 kg. charges.

One of the minor ironies of the desert war was the fact that both sides used the Ju 52/3m to transport troops to the fighting line. (Above) *are* Afrika Korps *personnel boarding a Junkers; while* (below) *an astonishingly similar photograph shows South African troops emplaning for the "Cape to Cairo" journey.*
(Photo below: A. Blake)

By 07.00 hours on 11th May, the fort had surrendered for the loss of only five of the attacking troops.

Approximately five hundred Ju 52/3*m* transports were made ready for the assault on France and the Low Countries, a large proportion being used against Holland. Paratroops were dropped on four major locations; north and south of the Moerdijk bridges, near Dordrecht, around Rotterdam/Waalhaven airfield and around The Hague, the latter with the intention of capturing the Dutch Royal Family. I, II and III./KGzbV 1 dropped a battalion of troops to the East of Waalhaven an hour after a bombing attack by KG 4 and I./KG 30. The Dutch troops put up a determined defence, but the airfield was soon

South African Air Force Ju 52 on a shuttle flight, 1942. (Photo: A Blake)

For a while the Ju 52's kept a tenuous life-line open to the beleaguered VI Armee *in Stalingrad; but despite the most impressive feats of skill and courage by no less than 17 transport* Gruppen, *the pocket was finally sealed off and annihilated. The snow-camouflaged aircraft illustrated here appears to carry the insignia of* Blindflugschule 2 *on the nose—many second-line units were pressed into service during the desperate attempts to supply the Stalingrad garrison.*

captured, the three *Gruppen* of KGzbV 1 losing forty-one aircraft.

During the day, 250 Ju 52/3*m*'s landed at Waalhaven, although heavy fire prevented the use of Ypenburg. Many transports landed on the main Rotterdam/The Hague highway near Delft. The He 59's and Ju 52/3*m* floatplanes of KGrzbV 108 landed 150 troops on the Maas at 05.00 hours and succeeded in capturing the bridges, the Moerdijk bridges also falling to a battalion of German paratroops after heavy fighting. IV./KGzbV 1 and KGrzbV 12 were given the task of dropping paratroops on The Hague, but it was here that the *Luftwaffe* suffered its severest losses. IV./KGzbV 1 lost 18 aircraft, but KGrzbV 12 lost no less than 40 and was almost immediately disbanded. KGrzbV 9 lost 39 aircraft and the other transport *Gruppe* used in the invasion of Holland, KGrzbV 11, lost 11.

After the initial assault, transport operations in force began to tail off, although the Ju 52/3*m* was still most active in supplying the advanced units of the *Wehrmacht*. No less than 167 Ju 52/3*m*'s were lost in the attack on Holland, the majority falling to anti-aircraft fire. Although taking no part in the assault, all *Luftwaffe* transport units were held in readiness for the proposed "Operation Sea Lion", the invasion of the British Isles. But in that fateful summer of 1940 the "Few" successfully repulsed the might of the *Luftwaffe* and the invasion was postponed, and finally cancelled.

THE BALKANS, RUSSIA AND AFRICA

The transport units of the *Luftwaffe* were instrumental in the quick transfer of German units to the Balkans for the onslaught on Yugoslavia and Greece. On 6th April the *Stukaverbände* launched a continuous attack on Belgrade and eleven days later the country capitulated. Twenty-two days after the invasion began, Greece was evacuated, and only Crete stood in the way of German domination of the Balkans.

At 07.00 hours on 20th May 1941, the *Luftwaffe* launched its greatest airborne assault of the war, "Operation Mercury"; the landing of 22,750 men on Crete. 493 Ju 52/3*m*'s and about 80 DFS 230's from KGzbV 1, the specially formed KGrzbV 40 and 60,

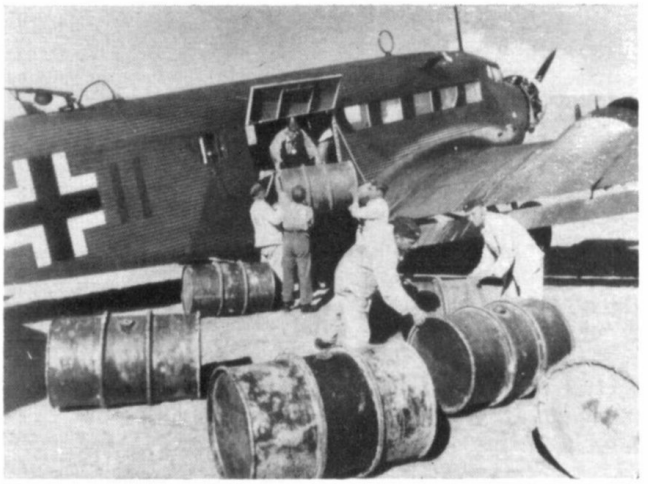
On a snow-covered Russion airstrip, the crew of a Junkers watch while a light anti-tank gun is prepared for loading aboard. (Photo: Archivo Reyes)

KGrzbV 101, 102, 105, 106, KGzbV 172 and *Luftlandgeschwader 1* were readied for the assault. The attack, under *General-Oberst* Student's *XI Fliegerkorps*, was planned in two waves, one directed against Maleme, the other on Canea. 750 troops were to be landed by glider, 10,000 by parachute, 5,000 in Ju 52/3*m*'s and 7,000 by sea. The attack did not go at all according to plan and troops from the 2nd New Zealand and 6th Australian Divisions put up a defiant resistance. Had the *Luftwaffe* not possessed complete air superiority, the invasion might easily have failed. As it was, about 4,500 German troops were killed and 170 transport aircraft destroyed or seriously damaged. Although a brilliant success, the costly invasion of Crete sounded the death knell of *Luftwaffe* parachute operations.

When Germany invaded Russia on 22nd June 1941, IV./KGzbV 1, KGrzbV 50, 102, 104, 106 and 108—all with Ju 52/3*m*'s were operational on the Eastern Front. The Russian "scorched earth" policy meant that most supplies had to be flown in by the *Luftwaffe*, and this strained its resources to the utmost. Perhaps the most famous operation by the *Luftwaffe* transport units in Russia was the delivery of supplies to the encircled *6 Armee* at Stalingrad. Taking part in the operation were the Ju 52/3*m*'s of KGzbV 1, KGrzbV 9, 50, 102, 105, I./KGzbV 172, KGrzbV 500, 600, 700, 800 and 900; the Fw 200's of KGrzbV 200, the He 111's of KGrzbV 5, 20 and 23 and the Ju 86's of KGrzbV 21 and 22.

Also brought into the operation were the He 111's of KG 27, KG 55 and I./KG 100 and even the He 177's of I./KG 50. Between 29th November 1942 and 3rd February 1943, 240,780 tons of equipment, food and munitions plus 88,700 tons of fuel were brought into Stalingrad by the *Luftwaffe's* transport units. These totals were, however, entirely inadequate

The Russian spring thaw caused difficulties for the Luftwaffe *as well as the* Wehrmacht; *here, a Ju 52/3m is "dug out" at Luck in 1941.* (Photo: Hans Obert)

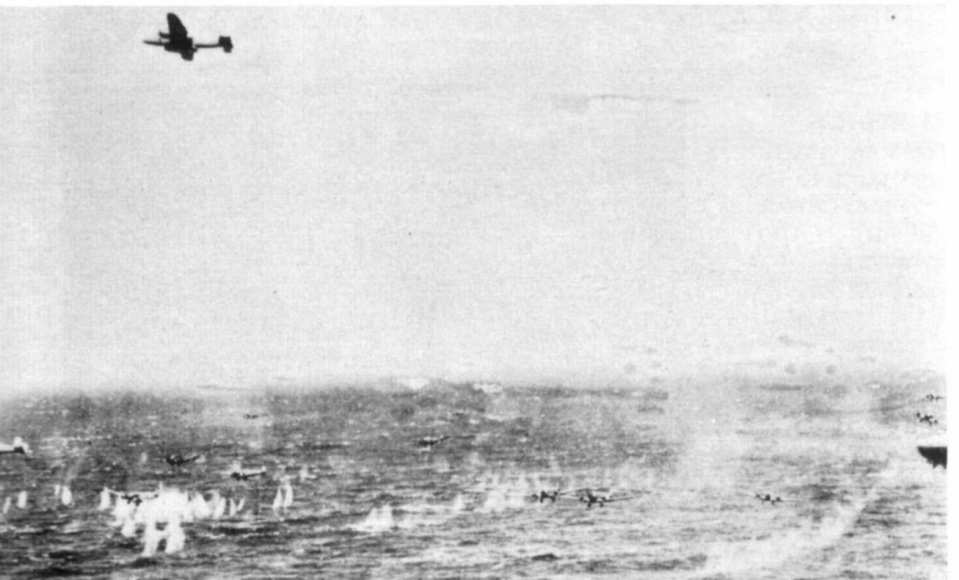


The ever-faithful workhorse of the German forces, the Junkers carried during its career every conceivable load. In these photos it is seen (left) *as a fuel transport in the Mediterranean;* (below) *as an ambulance in Poland; and* (right) *as a front line casualty evacuation aircraft in Russia.*
(Photos: via R. Ward, R. C. Seeley and Hans Obert)

to keep the Stalingrad garrison up to strength; and the horrors of the final fall of the city haunted German military minds until the end of the war.

Luftwaffe transport units had always been most active in the North African campaign, but in November 1942 no less than ten extra *Gruppen* were brought in to join the five units already stationed in the area. The five original units (III and IV./KGzbV 1, KGrzbV 400, 600 and 800) were joined by I and II./KGzbV 1, KGrzbV 102, 200, "Brindisi", "Frankfurt", "Naples", Reggio" and "Wittstock" plus the *Me 323 Gruppe*. As the Allied blockade of Axis shipping in the Mediterranean grew in intensity, the *Luftwaffe* was increasingly called upon to bring supplies to the hard pressed *Afrika Korps*.

During one notable action towards the end of the campaign, on 10th/11th April 1943, 24 Ju 52/3*m*'s and 14 escorts were shot down by Allied fighters. On 18th April, 52 out of about 100 Ju 52/3*m*'s were shot down near Cape Bon, many of the aircraft blowing up in spectacular fashion. On 22nd April the *Luftwaffe* attempted to bring in fuel by using the giant Me 323 transport. Twenty-one (all from the *Me 323 Gruppe*) were destroyed — virtually the total force employed. 432 transport aircraft were destroyed



Taken under the most exacting conditions, this photograph more than makes up in interest what it lacks in clarity; it is perhaps one of the most remarkable pictures to come out of the Second World War. During the last stages of the Tunisian campaign, the Luftwaffe's *transport fleet was called upon to cross and recross the straits between Africa and Sicily with totally inadequate fighter cover; and Allied aircraft recorded huge scores of Ju 52's destroyed. In this photograph twelve Junkers may be picked out flying low over the water, under heavy attack by a formation of U.S.A.A.F. B-25 Mitchells*
(Photo: Imp. War Mus. NY8092)

SE-AFA "Svealand," one of seven Ju 52/3m's purchased by Sweden's A. B. Aerotransport, *in orange wartime finish.*

between 5th and 22nd April for the loss of 35 Allied fighters.

In May 1943 the *Luftwaffe's Transportverbänd* was re-organised. The *Kampf Gruppen zur besonderen Verwendung* (Bomber Groups on special employment) were re-named as *Transport Gruppen* (see Table Two). Each *Gruppe* still contained four *Staffeln*, and the *Geschwader* often comprised sixteen *Staffeln*. From the summer of 1943, *Luftwaffe* transport operations with the Ju 52/3*m* gradually declined and an abortive attempt was made to replace it on the production lines with the Ju 352. But "Iron Annie" remained as ubiquitous as ever on *Luftwaffe* airfields. In May 1944 two emergency transport units, *Luft Vekehr Gesellschaft Bronkow* and *Mobil* under Maj. Grauert were formed from the remnants of several defunct *Gruppen*. Both operated on the invasion front bringing urgently needed supplies to the defending troops, but by September they had been decimated. By 25th April 1945, only seven Ju 52/3*m* units were operational: I and II./TG 1, II./TG 2, II and III./TG 3 and *See Transport Staffel 2*. III./TG 2 was also listed as operational, but had no aircraft. II./TG 1 and *See Trans.Sta.2* were both equipped with the Ju 52/3*m* floatplane.

The end of the war was not the end of the Ju 52/3*m* however. The type was built by the *Société Amiot* in France as the A.A.C.1 "Toucan" and used both by *L'Armée de l'Air* and Air France. One hundred aircraft were built in Spain by *Construcciones Aeronauticas S.A.* as the C-352-L powered by Elizalde-built B.M.W. 132 radials. These were used by the Spanish Air Force; and the Ju 52/3*m* was also used by the Swiss Air Force. Perhaps the most interesting were the ten captured Ju 52/3*mg8e*'s rebuilt by Short Brothers at Belfast for use by B.E.A. Put into service in November 1946 on the Scottish services, the aircraft were replaced by Dakotas late in 1947.

TABLE ONE

Junkers Ju 52 first production batch (W.Nrs.4001 to 4080)

4001	D-1974	Prototype Ju 52, single engine.
4002	D-2133	Ju 52 d series, various engines.
4004	D-2317	First Ju 52 c series, became SE-ADM.
4005	D-2356	Delivered to Reichsverband der Deutschen Luftfahrt-Industrie.
4006	CF-ARM	To Canadian Airways.
4008		To Lloyd Aereo Boliviano as "Juan del Valle".
4009		To Lloyd Aereo Boliviano as "Huanuni".
4013	D-2201	D.L.H. "Boelcke", later registered D-ADOM.
4014	OH-ALK	Aero O.Y. "Sampo", later registered OH-LAK.
4015	D-2202	D.L.H. "Richtofen", later registered D-ADYL.
4016	CV-FAI	Supplied to Prince Bibesco of Roumania, later YR-ABF
4017	SE-ADR	A.B. Aerotransport "Södermanland".
4018		Lloyd Aereo Boliviano as "Chorolque".
4019	D-2468	D.L.H., later D-AFIR.
4020	D-2490	D.L.H., later D-AFYS "Gustav Doerr".
4021	D-2600	Hitler's personal aircraft "Immelmann", later D-AHUT.
4022	D-2527	D.L.H. "Manfred von Richtofen", later D-AGUK "Kurt Wulf".
4023	D-2526	D.L.H. "Zephir", later D-AGAV "Emil Shäfer".
4024	PP-CAT	Syndicato Condor "Anhanga".
4025	D-2588	D.L.H. "Rudolf Kleine", later D-AHIH, finally to Syndicato Condor, Brazil.
4026	D-2624	D.L.H. "Rudolf Berthold", later D-AJAN.
4027	D-2640	D.L.H., later D-AZEV.
4028	D-2649	D.L.H. "Hermann Göring", later D-AJUX "Ulrich Neckel".

An unusual winter camouflage finish displayed by a wrecked Junkers, thought to be an aircraft of 6 Staffel, *TG 3. The paradoxical appearance of American troops examining an aircraft in Russian Front markings (note yellow area under the wing tip) may indicate that the photograph was taken in the last weeks of the war when the* Luftwaffe *was fighting on two swiftly-closing fronts and had no time to observe the finer points of livery.* (Photo: R. C. Seeley Collection)

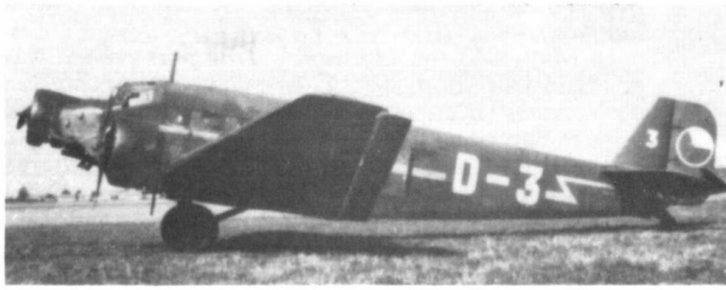
4029	D-2650	D.L.H. "Fritz Rümey", later D-AKEP.
4030	D-2725	D.L.H. "Paul Bäumer", later D-AKOK.
4035	D-3049	D.L.H. "Heinrich Gontermann", later D-ALAS.
4036	D-3050	D.L.H. "Kurt Wingens", later D-ALUN.
4037	D-3051	D.L.H. "Kurt Wüsthoff", later D-AMAM.
4038	PP-CAV	Syndicato Condor "Caicara".
4039	D-3123	D.L.H. "Gustav Leffers", later D-ANAL.
4040	D-3127	D.L.H. "Otto Parschau", later D-APAR.
4041	D-3131	D.L.H. "Werner Voss", later D-ARAM.
4042	D-3136	D.L.H. "Paul Billik", later D-ASEN, finally to Syndicato Condor as PP-CAY "Marimba".
4043	D-ABIS	D.L.H., later to Syndicato Condor as PP-CAX "Gurupira".
4044	D-ABAN	D.L.H. "Emil Thüy".
4045	D-AJYR	D.L.H. "Emil Schaefer".
4046	D-ADAL	D.L.H. "Karl Allmenröder", later to Deruluft as "Flamingo".
4047	D-AFER	D.L.H. "Franz Büchner", later re-registered D-AFES.
4048	D-AGIS	D.L.H. "Wilhelm Schmidt" and "Max von Müller", finally to Deruluft as "Kormoran".
4049	D-AHUS	D.L.H. "Heinrich Kroll", to Deruluft as "Milan".
4050	D-AJIM	D.L.H. "Hermann Göring".
4052	D-AXES	D.L.H. "Hans Berr", to Deruluft as "Kondor".
4053	D-AXAN	D.L.H. "Immelmann", later D-AHIT "H. J. Buddeck".
4054	D-ATON	D.L.H. "Erwin Böhme".
4055	D-AQAR	D.L.H. "W. Höhndorf".
4057	ZS-AFB	"Lord Charles Somerset", S.A.A.
4058	ZS-AFA	"Jan van Riebeek", S.A.A., later to Varig as PP-VAL.
4059	ZS-AFD	"Sir Benjamin d'Urban", to D.L.H. as D-ACBO "von Neübrandt".
4060	ZS-AFC	"Simon van der Stel", S.A.A., to D.L.H. as "Otto Parshau" D-AGFD, finally to Iberia as EC-AAI "La Cierva".
4061		Lloyd Aereo Boliviano, "Bolivar".
4062	I-BEZI	Ala Littoria.
4063	I-BAUS	Ala Littoria.
4064	I-BIZI	Ala Littoria.
4068	D-ABIZ	D.L.H. "Erich Albrecht".
4069	D-ABIK	D.L.H. "Manfred von Richtofen".
4070	D-ADEF	D.L.H. "Adolf Schirmer".
4071	D-ANYF	D.L.H. "Erich Pust".
4072	D-AMIP	D.L.H. "Fritz Erb".
4073	D-AVUL	D.L.H. "Bruno Rodschinka", to Iberia as "Guadal Quivir".
4074	D-ASIS	D.L.H. "Wilhelm Cuno".
4075	D-APEF	D.L.H. "Karl Kassel", to Syndicato Condor as PP-CBG "Page".
4076	EC-AAK	Iberia.
4077	D-ANOP	D.L.H. "Franz Simon", to D.N.L. as LN-DAE "Havorn".
4078	PP-CBB	Syndicato Condor "Tupan".
4079	D-APOR	D.L.H. "Olaf Bieberstein", later PP-CBF "Arocy".
4080	D-AGDA	D.L.H. "Wedige von Froreich".

TABLE TWO

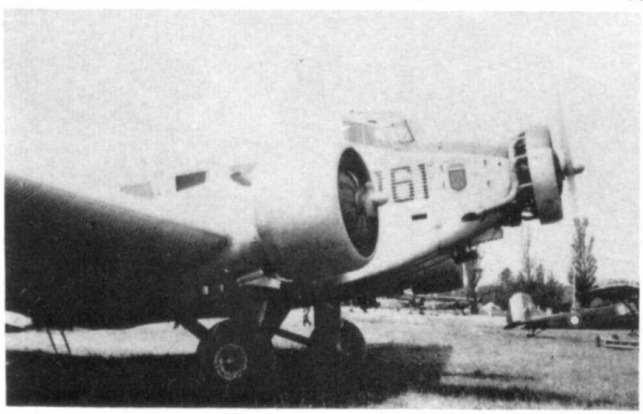
Luftwaffe Transport Units equipped with the Ju 52/3m.

Unit	*Code*	*Notes*
Stab/KGzbV 1	1Z	Became Stab/TG 1 in May 1943.
I./KGzbV 1	1Z	Became I./TG 1 in May 1943.
II./KGzbV 1	1Z	Became II./TG 1 in May 1943.
III./KGzbV 1	1Z	Became III./TG 1 in May 1943.
IV./KGzbV 1	1Z	Became IV./TG 1 in May 1943.
KGrzbV 2	G6	Became I./TG 2 in May 1943.
KGrzbV 3		Formed the Stabstaffel of TG 4 in May 1943.
KGrzbV 5	L5	Became TGr 30 in May 1943.
KGrzbV 6		Disbanded March 1942.
KGrzbV 7		Disbanded March 1942.
KGrzbV 8		Disbanded April 1942.
KGrzbV 9	4V	Became I./TG 3 in May 1943.
KGrzbV 11		Formed for the invasion of Holland, disbanded immediately afterwards.
KGrzbV 12		Ditto.
KGrzbV 40		Formed for the invasion of Crete, disbanded immediately afterwards.
KGrzbV 50		Became II./TG 3 in May 1943.
KGrzbV 60		Formed for the invasion of Crete, disbanded immediately afterwards.
KGrzbV 101		Took part in the invasions of Norway, the Low Countries and France and Crete, disbanded 1941.
KGrzbV 102		Became III./TG 3 in May 1943.
KGrzbV 103		Took part in the invasion of Norway, disbanded on 5th May 1940.
KGrzbV 104		Became II./TG 5 in May 1943.
KGrzbV 105		Became IV./TG 4, May 1943.
KGrzbV 106		Became III./TG 2 in May 1943.
KGrzbV 107		Disbanded in June 1940, remains going to KGrzbV 108.
KGrzbV 108	6I	Became TGr 20 in May 1943.
I./KGzbV 172	4V	Became IV./TG 3 in May 1943.
II./KGzbV 172	4V	Became *Blindflugschule* 6 at Crete.
KGrzbV 200		
KGrzbV 300		Became an *Ergänzungsgruppe* in March 1943.
KGrzbV 400		Became III./TG 4 in May 1943.
KGrzbV 500		Became I./TG 4 in May 1943.
KGrzbV 600		Probably became II./TG 4 in May 1943.
KGrzbV 700	7V	Converted to LeO 451's in 1943, never completed and disbanded in the summer of 1944.
KGrzbV 800		Became II./TG 2 in May 1943.
KGrzbV 900		Was to be re-equipped with the Me 323 and re-designated III./TG 5, but this was not completed.
KGrzbV 999		Disbanded in April 1942.

A damaged Ju 52/3m in Prague, 1945; and (below) *a machine operated post-war by the Czechoslovak Air Force; in Czech service the Ju 52/3m was designated D-52.*
(Photos: Jaroslav Zazvonil and Zdenek Titz)



The Amiot-built A.A.C.1 "Toucan" *was used as both a transport and a bomber by the French Air Force during its operations against the Viet-Minh in Indo-China during the early post-war years. This aircraft served in both rôles with G.T. "Maine", based at Bach-Mai (Hanoi) airfield in 1949.*
(Photo via Jean Cuny)

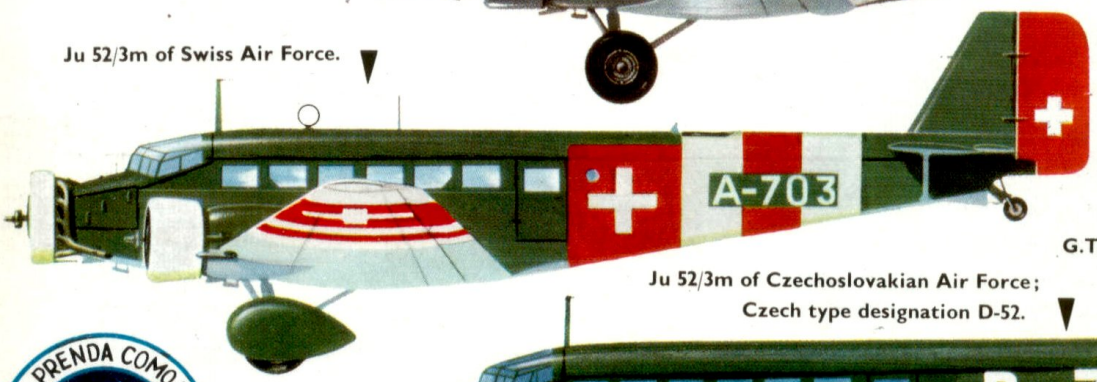


A "Toucan" *of the French* Aéronavale *in flight. In this photograph the loading doors on the starboard side may be seen to advantage.* (Photo: E.C.A. via Jean Cuny)

Ju 52/3 transport, ex-South African Airways (note civil registration overpainted) used in Abyssinia during East African campaign and later on Cape-to-Cairo route; subsequently camouflaged in desert scheme.

A.A.C.1, No. 347, of *Groupe Transport* "*Maine*", French Air Force, at Bach-Mai (Hanoi), French Indo-China, 1949. Aircraft subsequently operated with G.B.I/64 "Bearn" whose machines were equipped during 1950 with bomb racks (8×50 kg. under fuselage and 4×50 kg. under each wing) and flown on missions against the Viet-Minh. Suffix 'A' indicates second a/c 'Q' in unit.

Ju 52/3m of Swiss Air Force.

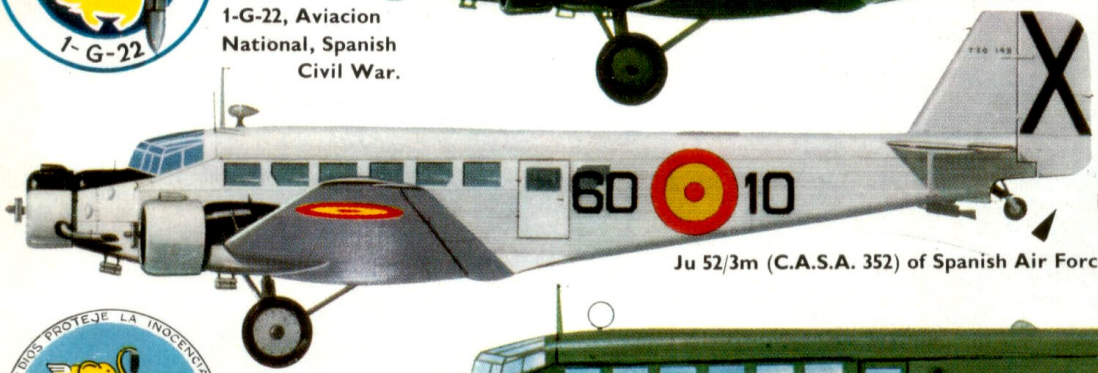


G.T. "Maine".

Ju 52/3m of Czechoslovakian Air Force; Czech type designation D-52.

1-G-22, Aviacion National, Spanish Civil War.

4-E-22, Aviacion National, Spanish Civil War.



Ju 52/3m (C.A.S.A. 352) of Spanish Air Force.

2-G-22, Aviacion National, Spanish Civil War; starboard presentation.

Ju 52/3m of F4 Wing, Swedish Air Force; impressed by Swedish A.F. during Second World War and designated Tp 5.

Ju 52 "Svealand" of Swedish Air Lines in Second World War colour scheme.

Sweden.

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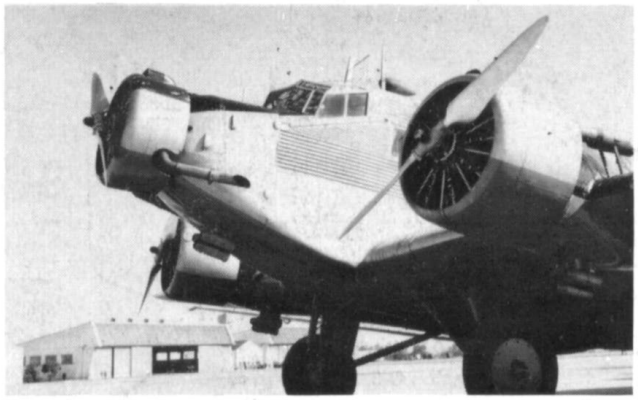

The Spanish Air Force qualifies as the most consistent operator of the "Iron Annie"; first used in the late 1930's, the type soldiers on today as the C.A.S.A.-352, in both transport and paratroop versions. (Photos: Archivo Reyes)

KGrzbV S-7	Disbanded in January 1943, remainder to KGrzbV 400. The "S" in the designation refers to "*Süd*" or South—i.e. the North African front.
KGrzbV S-11	Disbanded December 1942.
KGrzbV S-13	Disbanded December 1942.
KGrzbV Brindisi	
KGrzbV Frankfurt	Disbanded in February 1943 in North Africa.
KGrzbV Naples	
KGrzbV Opels	Disbanded in April 1942.
KGrzbV Posen	Disbanded in April 1942.
KGrzbV Reggio	
KGrzbV Wittstock	Disbanded February 1943.

Transport Geschwader and Gruppen (all formed in May 1943)

Stab/TG 1	1Z	Formed from Stab/KGzbV 1.
I./TG 1	1Z	Formed from I./KGzbV 1.
II./TG 1	1Z	Formed from II./KGzbV 1.
III./TG 1	1Z	Formed from III./KGzbV 1.
IV./TG 1	1Z	Formed from IV./KGzbV 1.
Stab/TG 2	8T	
I./TG 2	8T	Formed from KGrzbV 2.
II./TG 2	8T	Formed from KGrzbV 800.
III./TG 2	8T	Formed from KGrzbV 106.
Stab/TG 3	4V	
I./TG 3	4V	Formed from KGrzbV 9.
II./TG 3	4V	Formed from KGrzbV 50.
III./TG 3	4V	Formed from KGrzbV 102.
IV./TG 3	4V	Formed from I./KGzbV 172.
Stab/TG 4	G6	Formed from KGrzbV 3.
I./TG 4	G6	Formed from KGrzbV 500.
II./TG 4	G6	Formed from KGrzbV 600.
III./TG 4	G6	Formed from KGrzbV 400.
Stab/TG 5	C8	
I./TG 5	C8	Formed from the Me 323 Gruppe.
II./TG 5	C8	Formed from KGrzbV 104.
III./TG 5	C8	To have been formed from KGrzbV 900.
TGr 10		(Equipped only with the Savoia Marchetti SM.81).
TGr 20	6I	Formed from KGrzbV 108.
TGr 30	S3	Formed from KGrzbV 5.
LVG Bronkow		Special emergency transport units
LVG Mobil		(see text).

In addition many other units, training schools, *Luftflotten*, *Luftgaukommando*, *Kurrierstaffeln* etc. were equipped with the Ju 52/3*m*. It is beyond the scope of this *Profile* to attempt to list all of these units.

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SPECIFICATION

Junkers Ju 52*be*

Dimensions: Span 95 ft. 1¾ ins. Length 60 ft. 8¼ ins. Wing area 1,248 sq. ft.

Powerplant: One 755 h.p. B.M.W. VII*au* twelve cylinder liquid cooled in-line engine.

Armament: None.

Weights: Empty 8,576 lbs. Loaded 15,432 lbs.

Performance: Maximum speed 118 m.p.h. Cruising speed 99 m.p.h. Landing speed 48 m.p.h. Service ceiling 9,186 ft. Normal range 932 miles.

Junkers Ju 52/3*mg7e*

Dimensions: Span 95 ft. 10 ins. Length 62 ft. 0 ins. (63 ft. 7¾ ins. for the floatplane). Height 14 ft. 10 ins. Wing area 1,190 sq. ft.

Powerplants: Three 830 h.p. B.M.W. 132T nine cylinder air cooled radial engines.

Armament: One 13 mm. MG 131 machine gun in an open dorsal position and two 7·9 mm. MG 15 machine guns firing through the side windows.

Weights: Empty 14,325 lbs. Loaded 24,320 lbs.

Performance: Maximum speed 189 m.p.h. Cruising speed 160 m.p.h. Landing speed 60 m.p.h. Service ceiling 18,000 ft. Normal range 930 miles at 8,200 ft. Climb to 9,840 ft. was 19 minutes.

One of the most interesting versions of the series was the Ju 52/3mg6e, which could be fitted with a dural ring for mine-sweeping duties. Based on the French coast, the Minensuchgruppe *remained operational until late 1944.* (Photo: R. C. Seeley Collection)

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